

Y., 26th, 4:25 p. m., very violent wind storm, trees uprooted and fences and buildings demolished. Savoy, Tex., 28th, during the evening this town was almost entirely destroyed by a violent tornado, 15 persons killed and 60 wounded. At Suffield, Conn., on the 29th, about 1:30 p. m., a violent tornado, accompanied with torrents of rain and very heavy hail, passed from SW. to NE. through the township, crossing the Connecticut river directly opposite Thompsonville, where it lifted large bodies of water and demolished boats. In Thompsonville and also through the remaining portion of Enfield township to the eastward the destruction to property was very severe. From 20 to 30 buildings, several fine orchards and groves of choice forest trees were demolished. Width of storm track, about one mile, the boundary lines of destruction on either side being sharply defined, objects in close proximity escaping the slightest injury. In less than 10 minutes from the time the dark clouds were first seen in the west the entire destruction throughout Suffield was completed. The whirling action of the storm cloud was clearly evidenced by the peculiar twisting of the trees from right to left and the spreading of the debris in circles. The loss was estimated at from \$30,000 to \$40,000.

Sand-storms.—Umatilla, Oregon, 7th; Winnemucca, 2nd, 3rd, 4th, 22nd, 23rd; Burkes, Arizona, 12th, 13th, 22nd, 23rd, 24th, 25th; Colorado Springs, Colorado, 14th; North Platte, 11th, 12th, 13th, 14th; Yankton, 4th; Fort Garland, Col., 6th, 17th, 21st; Fort Union, N. M., 6th, 7th, 9th, 12th, 13th, 14th, 25th.

Waterspouts.—April 23rd, Schooner A. K. Bently in latitude 31°, 59', N. longitude 79°, 20', W., reported a remarkable waterspout in the SE., distant about one mile from vessel. It appeared to be an immense volume of water pouring from a dense black cloud. Yates Center, Kan., May 9th, waterspout burst on Vermillion river, 6 miles west of station, raising the water 16 feet in 20 minutes; thousands of fish were killed, not only where the spout burst, but for several miles below. Punta Rassa, Fla., 10th, between 5:50 and 6:05 p. m. a waterspout was seen near Sanibel Island, about two miles from observer, resembling the tall trunk of a coconut palm; it was of uniform diameter and brilliant whiteness. Altitude 20° and slightly inclined from the perpendicular at the top towards the east. The base for an apparent distance of 30 or 40 feet, was surrounded by a violently agitated mass of water. The body was a hollow cylinder composed of spray and water ascending with a rapid spiral motion from right to left; it moved from NE. to SW. and vanished from the bottom upwards. On Mustang creek, 4½ miles east of Colorado or Concho river, Texas, on the 28th, a huge waterspout, accompanied by an indescribable hissing, roaring noise, passed down the creek, drowning the horses of a party camped near by, and carrying away all their camp equipage and wagons; thousands of fish were thrown upon the banks.

VERIFICATIONS.

Indications.—The detailed comparison of the tri-daily indications for May, with the telegraphic reports for the succeeding twenty-four hours, shows the general percentage of verifications to be 82.8 per cent. The percentages for the four elements are: Weather, 88.3; Direction of the Wind, 81.6; Temperature, 79.0; Barometer, 81.7 per cent. By geographical districts they are: for New England, 77.4; Middle States, 82.6; South Atlantic States, 90.4; Eastern Gulf States, 87.7; Western Gulf States, 86.2; Lower Lake region, 80.6; Upper Lake region, 81.5; Tennessee and the Ohio valley, 83.0; Upper Mississippi valley, 80.7; Lower Missouri valley, 77.3; Northern Pacific region, 84.2; Central Pacific coast region, 85.5; Southern Pacific coast region, 87.5. There were 17 omissions to predict out of 3,813, or 0.45 per cent. Of the 3,796 predictions that have been made, 127, or 3.35 per cent, are considered to have entirely failed; 219, or 5.77 per cent, were one-fourth verified; 430, or 11.33 per cent, were one-half verified; 585, or 15.41 per cent, were three-fourths verified; 2,435, or 64.14 per cent, were fully verified, so far as can be ascertained from the tri-daily weather maps.

Cautionary Signals.—188 Cautionary Signals were displayed during the month, of which 142, or 75 per cent., were justified by winds of 25 miles per hour or over at, or within a radius of 100 miles of the station. 33 Off-shore Signals were displayed, of which 27, or 81.8 per cent, were fully justified; 28, or 84.8 per cent, were justified as to velocity and 32, or 97.0 per cent as to direction. 6 of the Off-shore were changed from Cautionary. 221 Signals of both kinds were displayed, of which 169 or 76.5 per cent, were fully justified. The above does not include signals ordered for 50 display stations, where the velocity is only estimated. 114 cases of winds of 25 miles and over per hour, from scattered stations, were reported, and for which signals had not been ordered.

NAVIGATION.

In the table on the right-hand side of chart No. III are given the highest and lowest readings of the Signal Service river gauges for the month of May, 1880, with the dates of the same. As a general rule the rivers fell throughout the month. The *Red River*, at Shreveport, and the *Arkansas*, at Little Rock, fell steadily throughout the month. The *Missouri* and *upper Mississippi* changed but little throughout the month. The *Mississippi*, at Cairo, rose three feet from the 1st to the 6th, fell slowly to the 28th, and rose two feet to end of month; at Memphis it rose from the 1st to the 11th, after which it fell to end of month; at Vicksburg the water fell slowly from the 1st to the 5th, and remained almost stationary thence to 15th, on the 15th a more decided fall, which continued to end of month, set in and the water passed below the danger-line on gauge, after having been above that point for a period of 9 weeks; at New Orleans the water fell slowly throughout the month, passing the danger-line on the 26th, after having been above that point